

March 30, 2006

Mr. Randall K. Edington  
Vice President-Nuclear and CNO  
Nebraska Public Power District  
P.O. Box 98  
Brownville, NE 68321

SUBJECT: COOPER NUCLEAR STATION - ISSUANCE OF AMENDMENT RE:  
TECHNICAL SPECIFICATION CHANGE REQUEST FOR VARIOUS SECTIONS  
(TAC NO. MC6760)

Dear Mr. Edington:

The Commission has issued the enclosed Amendment No. 218 to Facility Operating License No. DPR-46 for the Cooper Nuclear Station (CNS). The amendment consists of changes to the Technical Specifications (TSs) in response to your application dated April 13, 2005, as supplemented by letter dated September 29, 2005.

The amendment revises various sections in the CNS Technical Specifications. The TS changes: (1) revise the frequency for performing a control rod scram time surveillance following outages (TSTF-222-A); (2) allow insertion of a control rod withdrawal block and verification that all rods are fully inserted in lieu of suspending fuel movement when a refueling equipment interlock is inoperable (TSTF-225); (3) clarify which Emergency Core Cooling System (ECCS) instrumentation must be operable when in shutdown (TSTF-275-A); and (4) eliminate the need to require automatic start of the emergency diesel generators when the ECCS does not need to be operable (TSTF-300-A). The licensee's letter of April 13, 2005, requesting a TS license amendment, detailed the TS changes involved in adopting the Technical Specifications Task Force (TSTF) travelers. The TS changes and justifications are consistent with the TSTF travelers.

A copy of our related Safety Evaluation is also enclosed. The Notice of Issuance will be included in the Commission's next biweekly *Federal Register* notice.

Sincerely,

/RA/

Brian Benney, Project Manager  
Plant Licensing Branch IV  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket No. 50-298

Enclosures: 1. Amendment No. 218 to DPR-46  
2. Safety Evaluation

cc w/encls: See next page

March 30, 2006

Mr. Randall K. Edington  
Vice President-Nuclear and CNO  
Nebraska Public Power District  
P.O. Box 98  
Brownville, NE 68321

SUBJECT: COOPER NUCLEAR STATION - ISSUANCE OF AMENDMENT RE:  
TECHNICAL SPECIFICATION CHANGE REQUEST FOR VARIOUS SECTIONS  
(TAC NO. MC6760)

Dear Mr. Edington:

The Commission has issued the enclosed Amendment No. 218 to Facility Operating License No. DPR-46 for the Cooper Nuclear Station (CNS). The amendment consists of changes to the Technical Specifications (TSs) in response to your application dated April 13, 2005, as supplemented by letter dated September 29, 2005.

The amendment revises various sections in the CNS Technical Specifications. The TS changes: (1) revise the frequency for performing a control rod scram time surveillance following outages (TSTF-222-A); (2) allow insertion of a control rod withdrawal block and verification that all rods are fully inserted in lieu of suspending fuel movement when a refueling equipment interlock is inoperable (TSTF-225); (3) clarify which Emergency Core Cooling System (ECCS) instrumentation must be operable when in shutdown (TSTF-275-A); and (4) eliminate the need to require automatic start of the emergency diesel generators when the ECCS does not need to be operable (TSTF-300-A). The licensee's letter of April 13, 2005, requesting a TS license amendment, detailed the TS changes involved in adopting the Technical Specifications Task Force (TSTF) travelers. The TS changes and justifications are consistent with the TSTF travelers.

A copy of our related Safety Evaluation is also enclosed. The Notice of Issuance will be included in the Commission's next biweekly *Federal Register* notice.

Sincerely,

**/RA/**

Brian Benney, Project Manager  
Plant Licensing Branch IV  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket No. 50-298

Enclosures: 1. Amendment No. 218 to DPR-46  
2. Safety Evaluation

cc w/encls: See next page

DISTRIBUTION:

PUBLIC

LPLIV r/f

RidsNrrDirsltsb (TBoyce)

RidsAcrsAcnwMailCenter

RidsOgcRp

RidsNrrLAFeizollahi

RidsNrrPMBBenney

RidsNrrDpr

RidsRgn4MailCenter (KKennedy)

RidsNrrDorl (CHaney/CHolden)

TTjader

APal

RidsNrrDorlLplg (DTerao)

GHill (2)

(AMD) ACCESSION NO: **ML060730019**

(TS) ACCESSION NO: **ML**

PKG NO: **ML060730084**

OFFICE	NRR/LPL4/PM	NRR/LPL4/LA		OGC	NRR/LPL4/BC
NAME	BBenney	LFeizollahi		SUttal (NLO)	DTerao
DATE	3/17/06	3/15/06		3/28/06	3/29/06

OFFICIAL RECORD COPY

NEBRASKA PUBLIC POWER DISTRICT

DOCKET NO. 50-298

COOPER NUCLEAR STATION

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 218  
License No. DPR-46

1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by Nebraska Public Power District (the licensee) dated April 13, 2005, as supplemented by letter dated September 29, 2005, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;
  - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
  - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
  - D. The issuance of this license amendment will not be inimical to the common defense and security or to the health and safety of the public; and
  - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment and Paragraph 2.C.(2) of Facility Operating License No. DPR-46 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 218 , are hereby incorporated in the license. The Nebraska Public Power District shall operate the facility in accordance with the Technical Specifications.

3. The license amendment is effective as of its date of issuance and shall be implemented within 60 days from the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

**/RA/**

David Terao, Chief  
Plant Licensing Branch IV  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical  
Specifications

Date of Issuance: March 30, 2006

ATTACHMENT TO LICENSE AMENDMENT NO. 218

FACILITY OPERATING LICENSE NO. DPR-46

DOCKET NO. 50-298

Replace the following pages of the Appendix A Technical Specifications with the enclosed revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

REMOVE

3.1-12  
3.1-13  
3.3-37  
3.3-38  
3.3-39  
3.8-12  
3.9-1

INSERT

3.1-12  
3.1-13  
3.3-37  
3.3-38  
3.3-39  
3.8-12  
3.9-1

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 218 TO

FACILITY OPERATING LICENSE NO. DPR-46

NEBRASKA PUBLIC POWER DISTRICT

COOPER NUCLEAR STATION

DOCKET NO. 50-298

1.0 INTRODUCTION

On April 13, 2005, as supplemented by letter dated September 29, 2005 (Agencywide Documents Access and Management System Accession Nos. ML051090436 and ML052790490, respectively), Nebraska Public Power District (NPPD/the licensee) submitted an amendment to facility operating license for Cooper Nuclear Station (CNS). The licensee requested a modification of various sections in the CNS Technical Specifications (TSs). The TS changes: (1) revise the frequency for performing control rod scram time surveillance following outages (TSTF-222-A); (2) allow insertion of a control rod withdrawal block and verification that all rods are fully inserted in lieu of suspending fuel movement when a refueling equipment interlock is inoperable (TSTF-225); (3) clarify which Emergency Core Cooling System (ECCS) instrumentation must be operable when in shutdown (TSTF-275-A); and (4) eliminate the need to require automatic start of the emergency diesel generators (DGs) when the ECCS does not need to be operable (TSTF-300-A). The licensee's letter of April 13, 2005, requesting a TS license amendment, detailed the TS changes involved in adopting the Technical Specifications Task Force (TSTF) travelers. The TS changes and justifications are consistent with the TSTF travelers, and are evaluated herein.

Specifically, the changes would do the following:

1. TSTF-222-A, Revision 1: In TS Section 3.1.4, "Control Rod Scram Times," the specified Frequency for Surveillance Requirement (SR) 3.1.4.1 and SR 3.1.4.4 are revised to clarify that control rod scram time testing is required only for core cells in which work on the control rod or drive has been performed or fuel has been moved or replaced.
2. TSTF-275-A, Revision 0: In Section 3.3.5.1, "ECCS Instrumentation," Footnote (a) in Table 3.3.5.1-1 is revised to clarify that the ECCS initiation instrumentation, identified as being required in modes 4 and 5, is required to be operable only when the associated ECCS subsystems are required to be operable as defined in LCO 3.5.2, ECCS - Shutdown.
3. TSTF-300-A, Revision 0: In TS Section 3.8.2, "AC Sources — Shutdown," an additional note is added as Note 2 to SR 3.8.2.1 to specify that SR 3.8.1.11, the surveillance that verifies automatic start of the emergency diesel generators and automatic load shedding

from the emergency buses, is considered to be met without ECCS initiation signals operable when ECCS initiation signals are not required to be operable per Table 3.3.5.1-1, "ECCS Instrumentation."

4. TSTF-225, Revision 2: In TS Section 3.9.1, "Refueling Equipment Interlocks," Required Actions A.2.1 and A.2.2 are added to allow insertion of a control rod withdrawal block and verification that all control rods are fully inserted as alternate actions to suspending in-vessel fuel movement in the event that one or more required refueling equipment interlocks are inoperable.

## 2.0 BACKGROUND

Pursuant to Section 50.90 of Title 10 of the *Code of Federal Regulations* (10 CFR), NPPD has requested that the CNS TS be modified to incorporate the changes in the four identified TSTF change travelers that have been approved by the Nuclear Regulatory Commission (NRC) staff and incorporated into the Boiling-Water Reactor (BWR) Standard Technical Specifications (STS), NUREG-1433, Revision 3.

Since Revision 1 of the STS was published in 1995, the industry and the NRC staff have identified additional STS improvements. These improvements are proposed by the industry Technical Specifications Task Force and referenced by a TSTF number. Following industry acceptance and NRC staff approval, the NRC incorporates the Traveler into the STS. In most cases, these changes are generally applicable to individual plants and may be adopted by license amendment into plant-specific TSs. The CNS TSs are based on the improved STS. These Travelers, including the justification accepted by the NRC, are applicable to the CNS TSs:

1. TSTF-222-A, Revision 1, was approved by letter from William D. Beckner, NRC, to Mr. James Davis, Nuclear Energy Institute (NEI), dated May 12, 1999.
2. TSTF-275-A, Revision 0, was approved by letter from William D. Beckner, NRC, to Mr. James Davis, NEI, dated December 21, 1999.
3. TSTF-300-A, Revision 0, was approved by letter from William D. Beckner, NRC, to Mr. James Davis, NEI, dated April 21, 1999.
4. TSTF-225, Revision 2, proposed changes were approved by incorporation into Revision 3 to the BWR STS, NUREG-1433, published in June 2004.

## 3.0 REGULATORY EVALUATION

The regulatory requirements which the staff applied in its review of the application include:

Part 50 of 10 CFR, Appendix A, General Design Criterion (GDC) 17, "Electric power systems," requires, in part, that nuclear power plants have an onsite and offsite electric power system to permit the functioning of structures, systems, and components important to safety. The onsite system is required to have sufficient independence, redundancy, and testability to perform its safety function, assuming a single failure, and the offsite system is required to be supplied by

two independent circuits. In addition, this criterion requires provisions to minimize the probability of losing electric power from the remaining electric power supplies as the result of loss of power from the unit, the offsite transmission network, or the onsite power supplies.

GDC 18, "Inspection and testing of electric power systems," requires that electric power systems that are important to safety must be designed to permit appropriate periodic inspection and testing.

Section 50.36 of 10 CFR, "Technical specifications," requires a licensee's TS to establish limiting condition for operations (LCOs) and SR for equipment that is required for safe operation of the facility. Specifically, Section 50.36(c)(3) stipulates the SRs.

#### 4.0 TECHNICAL EVALUATION

The proposed changes to the CNS TSs are evaluated below.

##### 4.1 TSTF-222-A, Revision 1; revise frequency of SR 3.1.4.1 and SR 3.1.4.4

The scram function of the Control Rod Drive (CRD) System controls reactivity changes during abnormal operational transients to ensure that specified acceptable fuel design limits are not exceeded. The control rods are scrambled using hydraulic pressure exerted on the CRD piston.

The Design Basis Accident (DBA) and transient analyses assume that all of the control rods scram at a specified insertion rate. The resulting negative scram reactivity forms the basis for determination of plant thermal limits (for example, maximum critical power ratio). Surveillance of each individual control rod scram time ensures the scram reactivity assumed in the DBA and transient analyses can be met.

Current CNS SR 3.1.4.1 requires that the scram time of each control rod be verified to be within Table 3.1.4-1 prior to exceeding 40 percent rated thermal power (RTP) after a refueling or after a shutdown of 120 days or greater. As revised by this request, SR 3.1.4.4 will require scram time testing of the control rod prior to exceeding 40 percent RTP after fuel movement within the affected core cell. In a typical routine refueling outage, all core cells are likely to be affected as a result of some fuel movement, e.g., a spent fuel assembly is replaced with a fresh assembly, a fuel assembly is relocated from one cell to another, or a fuel assembly is reoriented within a core cell. Therefore, scram time testing will continue to be conducted on all control rods following a routine refueling.

If a core cell is not affected by (1) movement of one of the four fuel assemblies in the cell, (2) replacement of the control rod in that cell, or (3) maintenance on the control rod drive system for the rod in that cell, the scram time of the control rod in that core cell is not expected to be impacted. As a result, there would be no need to conduct scram time testing on that control rod. Furthermore, it is expected that the periodic scram time testing of a representative sample (10 percent of the control rods), as required by SR 3.1.4.2, will identify any long-term phenomenon that could result in degradation of scram time.

Revising the second frequency of SR 3.1.4.4 to require scram time testing after fuel movement "within the affected core cells" clarifies that only those control rods in core cells in which fuel



was moved or replaced or control rod maintenance was performed are required to be scram time tested. It is expected that all core cells will be affected in this manner during a routine refueling outage, and therefore, the scram time testing will be required on all control rods.

Deleting the first part of SR 3.1.4.1 frequency, and revising the second part and reversing the order of the two parts of SR 3.1.4.4 frequency makes the CNS TSs consistent with the SRs in the current version of BWR/4 STS (NUREG-1433, Revision 3.0).

These changes are expected to be of benefit during outages when a limited number of fuel cells are affected by avoiding the need to perform scram time testing on control rods in core cells that were not affected by fuel moves, control rod replacement, or control rod drive maintenance.

#### 4.2 TSTF 275-A, Revision 0; Revise Note in table 3.3.5.1-1 ECCS

The purpose of the ECCS instrumentation is to initiate appropriate responses from the systems to ensure that the fuel is adequately cooled in the event of a DBA or transient. The ECCS instrumentation actuates the Core Spray (CS) System, Low-Pressure Coolant Injection (LPCI) System (a mode of residual heat removal), High-Pressure Coolant Injection (HPCI) System, Automatic Depressurization System (ADS), and the DGs.

Table 3.3.5.1-1 identifies instrumentation associated with the actuation of the ECCS. The ECCS whose instrumentation is addressed in Table 3.3.5.1-1 are CS, LPCI, HPCI, and ADS.

TSTF-275-A makes the following statements:

- A. "The proposed change to LCO 3.3.5.1 would clarify which, if any, ECCS instrumentation is required to be operable in Mode 5, with [the] RPV [reactor pressure vessel] level greater than or equal to [23] feet above the RPV flange to support EDG operability." [For CNS the limit is 21 feet above the pressure vessel flange, as reflected in LCO 3.5.2 Applicability].
- B. "Consistent with the operability requirements in LCO 3.5.2, ECCS - Shutdown, ECCS is not required to be operable when the plant is at high water level. If the ECCS is not required then the instrument whose function it is to initiate the ECCS should not be required."
- C. "... the current footnote implies that the ECCS instrumentation is required to be operable not only when the associated ECCS is required to be operable but also when the associated ECCS support systems are required to be operable. This is incorrect since these support systems also support other functions that are required at times when the ECCS system and associated initiation instrumentation [are] not needed (e.g., the DGs are required during fuel handling.)"

In accordance with the Applicability section of TS 3.5.2, an ECCS subsystem is not required to be operable when the plant is in mode 5 with the spent fuel pool gates removed and water level is greater than or equal to 21 feet above the top of the pressure vessel flange. If the ECCS subsystem is not required to be operable, then the instrumentation associated with that ECCS

subsystem also should not be required to be operable. In accordance with TSTF-275-A, footnote (a) has been modified to only require these functions to be operable when the associated ECCS subsystems are required to be operable per LCO 3.5.2.

Clarifying this note in Table 3.3.5.1-1 is expected to be beneficial in that it will avoid requiring the applicable instrumentation functions to be operable when ECCS subsystems are not required to be operable in mode 5.

#### 4.3 TSTF-300-A, Revision 0; Add Note to SR 3.8.2.1

The LCO in TS Section 3.8.2, "*AC Sources — Shutdown*," identifies the electrical alternating current (AC) systems required to be operable when the plant is in shutdown modes 4 and 5, and during movement of irradiated fuel assemblies in the secondary containment. The operability of the minimum AC sources during these times ensures that (a) CNS can be maintained in a shutdown or refueling condition for extended periods; (b) sufficient instrumentation and control capability is available for monitoring and maintaining the unit status; and (c) adequate AC electrical power is provided to mitigate events postulated during a shutdown, such as an inadvertent draindown of the vessel or a fuel handling accident.

SR 3.8.2.1 requires certain SRs from LCO 3.8.1, "*AC Sources — Operating*," to be performed and met to demonstrate operability of the AC sources in modes other than 1, 2, and 3.

SR 3.8.1.11 requires verifying that three functions will occur in response to an actual or simulated loss of offsite power (LOOP) signal in conjunction with an actual or simulated ECCS initiation signal. The three functions are:

- a. Emergency buses will de-energize,
- b. Loads on the emergency buses will automatically drop off (load shed), and
- c. The DG will automatically start from standby condition and satisfy five specific criteria.

SR 3.8.1.11 is not performed prior to entering mode 4 or 5 as part of a refueling outage. Rather, testing to satisfy SR 3.8.1.11 is performed during a refueling outage prior to startup for the next operating cycle.

The current note in SR 3.8.2.1 identifies SR 3.8.1.11 as one of several SRs that are not required to be performed. Although SR 3.8.1.11 is not required to be performed, SR 3.0.1 requires that plant systems and components in the TS be able to meet requirements identified in applicable SRs when the plant is in the modes or other specified conditions in the applicability for individual LCOs. Thus, the requirements of SR 3.8.1.11 must be met at all times, not only when it is being performed.

The licensee proposed to add the following as a new Note 2 to SR 3.8.2.1:

"SR 3.8.1.11 is considered to be met without the ECCS initiation signals OPERABLE when the ECCS initiation signals are not required to be OPERABLE per Table 3.3.5.1-1."

Adding this note to SR 3.8.2.1 is expected to be beneficial in that it has the potential to facilitate performance of maintenance on a DG when CNS is in mode 4 or 5. The licensee also proposed to number the current note as "Note 1," and to make the header plural, i.e., "NOTES."

The change in TSTF-300-A is that exceptions are added to the DG SR requirements for LCO 3.8.2, AC Sources — Shutdown. These exceptions will eliminate the requirement that the DG be capable of responding to ECCS signals (i.e., eliminate the requirement of SR 3.8.1.12 and 3.8.1.19 to be met) while the ECCS subsystems are not required to be operable.

As justification the TSTF states the following:

"Exceptions are added to the DG SR requirements for LCO 3.8.2, AC Sources - Shutdown. These exceptions will eliminate the requirement that the DG be capable of responding to ECCS initiation signals while the ECCS subsystems are not required to be Operable. During shutdown modes, when the vessel is defueled or when the reactor cavity is flooded, the ECCS Systems are not required to be Operable. Therefore, the ECCS-start functions of the DGs serve no safety significant support function. As such, the SRs that test/prove the DG capability to respond to an ECCS-start signal may be removed from DG operability considerations at these times when the ECCS Systems are not required to be Operable."

The above justification from TSTF-300-A is applicable to CNS. When ECCS subsystems are not required to be operable per LCO 3.5.2, "*ECCS — Shutdown*," the DG is not required to start in response to ECCS initiation signals. However, the DG is still required to meet the other attributes of SR 3.8.1.11 when associated ECCS initiation signals are not required to be operable per TS Table 3.3.5.1-1.

In its application, the licensee stated that the proposed change is consistent with the TSTF. However, the wording of the new Note 2 for CNS differs from the note reflected in TSTF-300-A in two respects. The first difference is that the note proposed for CNS refers only to SR 3.8.1.11. CNS has one SR (SR 3.8.1.11) that bounds SRs 3.8.1.11, 3.8.1.12, and 3.8.1.19 from NUREG-1433. CNS did not adopt SRs 3.8.1.11 and 3.8.1.12 from NUREG-1433, Revision 1 as part of the conversion to STS because DG testing practices at CNS did not perform LOOP and loss-of-coolant accident (LOCA) tests individually. The results of the combined LOOP/LOCA test at CNS bounds the results of the individual LOOP and LOCA tests. CNS SR 3.8.1.11 is equivalent to SR 3.8.1.19 in NUREG-1433, Revision 3.

The second difference is that the note proposed for CNS states that the SR "is considered to be met" whereas the note in TSTF-300-A states that the SR is "not required to be met." In response to the NRC staff's request for additional information, the licensee stated that the note proposed for CNS TS SR 3.8.2.1 included SR 3.8.1.11 "is considered to be met" rather than "are not required to be met" as the note in TSTF-300-A states, because certain portions of SR 3.8.1.11 are required to be met even when the ECCS subsystems and DG start signals from ECCS are not required to be operable. The DGs must be able to auto start and meet the provisions of 3.8.1.11 in order to mitigate a postulated fuel handling accident occurring concurrent with a LOOP. The second part of the question requests explanation of the meaning of "considered to be met." SR 3.0.1 states that failure to meet an SR shall be failure to meet the LCO, whether such failure is experienced during performance of the SR or between performances. Based on SR 3.0.1, SRs are considered to be satisfied between performances

unless information that causes this to be questioned becomes known. SR 3.8.1.11 specifies certain actions that must be verified on an actual or simulated LOOP signal in conjunction with an actual or simulated ECCS initiation signal. The phrase "considered to be met" means that verification of these actions is considered to be current, even with the ECCS initiation signals not functional at times when the ECCS is not required to be operable in accordance with TS Section 3.5.2, "ECCS — Shutdown."

Additionally, the licensee stated that the wording of the note proposed by CNS for TS SR 3.8.2.1 differs from that proposed in TSTF-300-A. The basis for each is the same and both achieve the same result. Both reflect that the ECCS signals that start the DG(s) are not required to be operable when the ECCS subsystems are not required to be operable. Both are based on the fact that when the ECCS subsystems are not required to be operable, in accordance with TS LCO 3.5.2, the ECCS signals that start the DG(s) serve no safety significant support function and, therefore, are not required to be operable. The ECCS initiation signals are identified in TS Table 3.3.5.1-1, "Emergency Core Cooling System Instrumentation." When the ECCS subsystems are not required to be operable by LCO 3.5.2, the ECCS initiation signals of Table 3.3.5.1-1 are not required to be operable. It is more appropriate to reference Table 3.3.5.1-1 than LCO 3.5.2 in the Note when discussing ECCS initiation signals because this table identifies the ECCS initiation signals.

In response to the NRC staff's concern regarding which attributes will be met and how this SR will be performed, the licensee stated that the "other attributes" of SR 3.8.1.11 are the functions specified in parts a, b, and c of the SR that will occur in response to a LOOP. Although auto-start of the DG from standby conditions in response to an ECCS initiation signal is not required, the other actions of de-energization of the emergency buses, load shed from the buses, and DG energizing required loads and achieving proper steady-state voltage and frequency, must still occur in response to a LOOP.

On the basis of its review, the NRC staff finds that during shutdown modes, when the vessel is refueled or when the reactor cavity is flooded, the ECCS systems are not required to be operable and the DG ECCS start function serves no safety function. Based on this, the NRC staff concludes that the proposed change to SR 3.8.2.1 (and its associated bases) of the TS is acceptable.

#### 4.4 TSTF-225, Revision 2; Add Required Actions to TS 3.9.1 Condition A

Refueling interlocks, in combination with core nuclear design and refueling procedures, limit the probability of an inadvertent criticality. The combination of refueling interlocks for control rods and the refueling platform provide redundant methods of preventing inadvertent criticality, even after procedural violations.

Control rods, when fully inserted, serve as the system capable of maintaining the reactor subcritical in cold conditions during all fuel movement activities and accidents.

Current Required Action A.1 requires that in-vessel fuel movement with equipment associated with the inoperable interlocks be immediately suspended if one or more refueling equipment interlocks is inoperable. This action ensures that fuel movement is not performed with equipment that would potentially not be blocked from unacceptable operations (e.g., loading fuel into a cell with a control rod withdrawn).

As stated in the TSTF, the additional Required Actions provide an alternative action for when the refueling interlocks are inoperable. Required Action A.2.1 requires that a control rod withdrawal block be inserted immediately. Required Action A.2.2 requires immediately verifying that all control rods are fully inserted. These actions will ensure that control rods are not withdrawn, and cannot be withdrawn, as a result of the continuous block to control rod withdrawal in place. These alternate actions provide protection against inadvertent criticality.

The safety objective of the refueling equipment interlocks is to prevent an inadvertent criticality during refueling operations. The safety design basis is that (1) all control rods shall be fully inserted during fuel movements in or over the reactor core, and (2) no more than one rod shall be withdrawn from fully inserted when the reactor is in the refuel mode.

The insertion of a control rod withdrawal block (Required Action A.2.1) will ensure that no control rod can be inadvertently withdrawn. The control rod withdrawal block does not prohibit insertion of control rods. Verifying that all control rods are fully inserted (Required Action A.2.2) will ensure that the maximum amount of negative reactivity available from the control rods is inserted into the core. The combination of blocking control rod withdrawal and ensuring that the rods are fully inserted assures that the reactor cannot inadvertently be made critical. This assures that the safety objective is met and the safety design basis is satisfied.

The TSTF states that the first refueling equipment interlock safety function is to block control rod withdrawal whenever fuel is being moved over or in the reactor vessel, and that the second safety function is to prevent fuel from being loaded into the reactor vessel when a control rod is withdrawn. As stated in the TSTF, the proposed alternative Required Actions will perform these functions by requiring that a control rod block be placed in effect.

The withdrawal block inserted by Required Action A.2.1 will ensure that no control rod will respond (i.e., the rod will remain inserted) if rod withdrawal is attempted. As noted in TSTF-225, Revision 2, the verification of all control rods being fully inserted by proposed alternate Required Action A.2.2 is in addition to the periodic verification every 12 hours required by SR 3.9.3.1 when loading fuel assemblies into the core. Like Required Action A.1, Required Actions A.2.1 and A.2.2 will ensure that unacceptable operations (e.g., loading fuel into a cell with a control rod withdrawn) are blocked.

This proposed change would be beneficial in that it would allow fuel movement to continue in the event that a refueling equipment interlock is inoperable, while continuing to maintain a sufficient level of protection against inadvertent criticality.

## 5.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Nebraska State official was notified of the proposed issuance of the amendment. The State official had no comments.

## 6.0 ENVIRONMENTAL CONSIDERATION

The amendment changes a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and changes surveillance requirements. The NRC staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that

may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendment involves no significant hazards consideration, and there has been no public comment on such finding published June 7, 2005 (70 FR 33216). The amendment also relates to changes in recordkeeping, reporting, or administrative procedures or requirements. Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9) and 10 CFR 51.22(c)10. Pursuant to 10 CFR 51.22(b) no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendment.

## 7.0 CONCLUSION

The proposed TS changes are consistent with the STS, satisfy the 10 CR 50.36(c)(2)(ii) criteria, maintain safety consistent with the CNS safety analysis and are acceptable for inclusion in the TS. The Commission has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributors: A. Pal  
T. Tjader

Date: March 30, 2006



Cooper Nuclear Station

cc:

Mr. William J. Fehrman  
President and Chief Executive Officer  
Nebraska Public Power District  
1414 15<sup>th</sup> Street  
Columbus, NE 68601

Mr. Gene Mace  
Nuclear Asset Manager  
Nebraska Public Power District  
P.O. Box 98  
Brownville, NE 68321

Mr. John C. McClure  
Vice President and General Counsel  
Nebraska Public Power District  
P. O. Box 499  
Columbus, NE 68602-0499

Mr. Paul V. Fleming  
Licensing Manager  
Nebraska Public Power District  
P.O. Box 98  
Brownville, NE 68321

Mr. Michael J. Linder, Director  
Nebraska Department of Environmental  
Quality  
P. O. Box 98922  
Lincoln, NE 68509-8922

Chairman  
Nemaha County Board of Commissioners  
Nemaha County Courthouse  
1824 N Street  
Auburn, NE 68305

Ms. Julia Schmitt, Manager  
Radiation Control Program  
Nebraska Health & Human Services R & L  
Public Health Assurance  
301 Centennial Mall, South  
P.O. Box 95007  
Lincoln, NE 68509-5007

Mr. H. Floyd Gilzow  
Deputy Director for Policy  
Missouri Department of Natural Resources  
P. O. Box 176  
Jefferson City, MO 65102-0176

Senior Resident Inspector  
U.S. Nuclear Regulatory Commission  
P. O. Box 218  
Brownville, NE 68321

Regional Administrator, Region IV  
U.S. Nuclear Regulatory Commission  
611 Ryan Plaza Drive, Suite 400  
Arlington, TX 76011

Director, Missouri State Emergency  
Management Agency  
P. O. Box 116  
Jefferson City, MO 65102-0116

Chief, Radiation and Asbestos  
Control Section  
Kansas Department of Health  
and Environment  
Bureau of Air and Radiation  
1000 SW Jackson  
Suite 310  
Topeka, KS 66612-1366

Mr. Daniel K. McGhee  
Bureau of Radiological Health  
Iowa Department of Public Health  
Lucas State Office Building, 5th Floor  
321 East 12th Street  
Des Moines, IA 50319

Mr. Keith G. Henke, Planner  
Division of Community and Public Health  
Office of Emergency Coordination  
930 Wildwood P.O. Box 570  
Jefferson City, MO 65102

Jerry C. Roberts, Director of Nuclear  
Safety Assurance  
Nebraska Public Power District  
P.O. Box 98  
Brownville, NE 68321

Mr. John F. McCann, Director  
Licensing, Entergy Nuclear Northeast  
Entergy Nuclear Operations, Inc.  
440 Hamilton Avenue  
White Plains, NY 10601-1813